

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-40 (Canceled).

41. (New) A semiconductor device comprising a pixel portion and a driver circuit on a substrate, comprising:

a base film formed on said substrate;

a first, second, and third semiconductor layers over said base film;

a first gate electrode adjacent to said first semiconductor layer with a gate insulating film interposed therebetween, wherein a first LDD region in said first semiconductor layer is not overlapped with said first gate electrode;

a second gate electrode adjacent to said second semiconductor layer with said gate insulating film interposed therebetween, a second LDD region in said second semiconductor layer is overlapped with said second gate electrode;

a third gate electrode adjacent to said third semiconductor layer with said gate insulating film interposed therebetween, a third LDD region in said third semiconductor layer is partly overlapped with said third gate electrode,

wherein said pixel portion comprises said first semiconductor film, and said driver circuit comprises said second and third semiconductor films, and

wherein said gate insulating film comprises a hydrogenated silicon oxynitride film having an oxygen concentration from 55 to 70 atomic%, a nitrogen concentration from 0.1 to 6 atomic%, and a hydrogen concentration from 0.1 to 3 atomic%.

42. (New) The semiconductor device according to claim 41, wherein said semiconductor device is one selected from the group consisting of a personal computer, a video camera, a portable information terminal, a digital camera, a digital video disk player, an electronic game equipment, and a projector.

43. (New) The semiconductor device according to claim 41, wherein said semiconductor device is an electroluminescence display device.

44. (New) The semiconductor device according to Claim 41, wherein said substrate is a glass substrate.

45. (New) A semiconductor device comprising a pixel portion and a driver circuit on a substrate, comprising:

a first, second, and third semiconductor layers over said substrate;

a first gate electrode adjacent to said first semiconductor layer with a gate insulating film interposed therebetween, wherein a first LDD region in said first semiconductor layer is not overlapped with said first gate electrode;

a second gate electrode adjacent to said second semiconductor layer with said gate insulating film interposed therebetween, a second LDD region in said second semiconductor layer is overlapped with said second gate electrode;

wherein said pixel portion comprises said first semiconductor film, and said driver circuit comprises said second and third semiconductor films, and

wherein said gate insulating film comprises a hydrogenated silicon oxynitride film having an oxygen concentration from 55 to 70 atomic%, a nitrogen concentration from 0.1 to 6 atomic%, and a hydrogen concentration from 0.1 to 3 atomic%.

46. (New) The semiconductor device according to claim 45, wherein said semiconductor device is one selected from the group consisting of a personal computer, a video camera, a portable information terminal, a digital camera, a digital video disk player, an electronic game equipment, and a projector.

47. (New) The semiconductor device according to claim 45, wherein said semiconductor device is an electroluminescence display device.

48. (New) A semiconductor device comprising a pixel portion and a driver circuit on a substrate, comprising:

a first, second, and third semiconductor layers over said substrate;

a first gate electrode adjacent to said first semiconductor layer with a gate insulating film interposed therebetween, wherein a first LDD region in said first semiconductor layer is not overlapped with said first gate electrode;

a second gate electrode adjacent to said second semiconductor layer with said gate insulating film interposed therebetween, a second LDD region in said second semiconductor layer is overlapped with said second gate electrode;

wherein said pixel portion comprises said first semiconductor film, and said driver circuit comprises said second and third semiconductor films,

wherein said gate insulating film comprises a hydrogenated silicon oxynitride film having an oxygen concentration from 55 to 70 atomic%, a nitrogen concentration from 0.1 to 6 atomic%, and a hydrogen concentration from 0.1 to 3 atomic%, and

wherein said gate insulating film has a thickness between 40 and 150 nm.

49. (New) The semiconductor device according to claim 48, wherein said semiconductor device is one selected from the group consisting of a personal computer, a video camera, a portable information terminal, a digital camera, a digital video disk player, an electronic game equipment, and a projector.

50. (New) The semiconductor device according to claim 48, wherein said semiconductor device is an electroluminescence display device.

51. (New) A semiconductor device comprising a pixel portion and a driver circuit on a substrate, comprising:

a first, second, and third semiconductor layers over said substrate;

a first gate electrode over said first semiconductor layer with a gate insulating film interposed therebetween, wherein a first LDD region in said first semiconductor layer is not overlapped with said first gate electrode;

a second gate electrode over said second semiconductor layer with said gate insulating film interposed therebetween, a second LDD region in said second semiconductor layer is overlapped with said second gate electrode;

wherein said pixel portion comprises said first semiconductor film, and said driver circuit

comprises said second and third semiconductor films, and

wherein said gate insulating film comprises a hydrogenated silicon oxynitride film having an oxygen concentration from 55 to 70 atomic%, a nitrogen concentration from 0.1 to 6 atomic%, and a hydrogen concentration from 0.1 to 3 atomic%.

52. (New) The semiconductor device according to claim 51, wherein said semiconductor device is one selected from the group consisting of a personal computer, a video camera, a portable information terminal, a digital camera, a digital video disk player, an electronic game equipment, and a projector.

53. (New) The semiconductor device according to claim 51, wherein said semiconductor device is an electroluminescence display device.

54. (New) A semiconductor device comprising a pixel portion and a driver circuit on a substrate, comprising:

a first, second, and third semiconductor layers over said substrate;

a first gate electrode over said first semiconductor layer with a gate insulating film interposed therebetween, wherein a first LDD region in said first semiconductor layer is not overlapped with said first gate electrode;

a second gate electrode over said second semiconductor layer with said gate insulating film interposed therebetween, a second LDD region in said second semiconductor layer is overlapped with said second gate electrode;

wherein said pixel portion comprises said first semiconductor film, and said driver circuit comprises said second and third semiconductor films,

wherein said gate insulating film comprises a hydrogenated silicon oxynitride film having an oxygen concentration from 55 to 70 atomic%, a nitrogen concentration from 0.1 to 6 atomic%, and a hydrogen concentration from 0.1 to 3 atomic%, and

wherein said gate insulating film has a thickness between 40 and 150 nm.

55. (New) The semiconductor device according to claim 54, wherein said semiconductor device is one selected from the group consisting of a personal computer, a video camera, a portable information terminal, a digital camera, a digital video disk player, an electronic game equipment, and a projector.

56. (New) The semiconductor device according to claim 54, wherein said semiconductor device is an electroluminescence display device.

57. (New). The semiconductor device according to claim 41, wherein said second semiconductor layer comprises a second source region, a second drain region, and a second channel region between said second source and drain regions, said second LDD region is between said second channel and drain regions, and said second source region is in contact with said second channel region.

58. (New). The semiconductor device according to claim 45, wherein said second semiconductor layer comprises a second source region, a second drain region, and a second channel region between said second source and drain regions, said second LDD region is between said second channel and drain regions, and said second source region is in contact with said second channel region.

59. (New). The semiconductor device according to claim 48, wherein said second semiconductor layer comprises a second source region, a second drain region, and a second channel region between said second source and drain regions, said second LDD region is between said second channel and drain regions, and said second source region is in contact with said second channel region.

60. (New). The semiconductor device according to claim 51, wherein said second semiconductor layer comprises a second source region, a second drain region, and a second channel region between said second source and drain regions, said second LDD region is between said second channel and drain regions, and said second source region is in contact with said second channel region.

61. (New). The semiconductor device according to claim 54, wherein said second semiconductor layer comprises a second source region, a second drain region, and a second channel region between said second source and drain regions, said second LDD region is between said second channel and drain regions, and said second source region is in contact with said second channel region.

62. (New). The semiconductor device according to claim 41, wherein said semiconductor device further comprising:

- a first insulating film over said first, second, and third gate electrodes;
- a second insulating film over said first insulating film;
- a third insulating film comprising organic resin over said second insulating film;

a pixel electrode over said third insulating film, said pixel electrode electrically connected to said first semiconductor layer.

63. (New). The semiconductor device according to claim 45, wherein said semiconductor device further comprising:

a first insulating film over said first and second gate electrodes;

a second insulating film over said first insulating film;

a third insulating film comprising organic resin over said second insulating film;

a pixel electrode over said third insulating film, said pixel electrode electrically connected to said first semiconductor layer.

64. (New). The semiconductor device according to claim 48, wherein said semiconductor device further comprising:

a first insulating film over said first and second gate electrodes;

a second insulating film over said first insulating film;

a third insulating film comprising organic resin over said second insulating film;

a pixel electrode over said third insulating film, said pixel electrode electrically connected to said first semiconductor layer.

65. (New). The semiconductor device according to claim 51, wherein said semiconductor device further comprising:

a first insulating film over said first and second gate electrodes;

a second insulating film over said first insulating film;

a third insulating film comprising organic resin over said second insulating film;

a pixel electrode over said third insulating film, said pixel electrode electrically connected to said first semiconductor layer.

66. (New). The semiconductor device according to claim 54, wherein said semiconductor device further comprising:

a first insulating film over said first and second gate electrodes;

a second insulating film over said first insulating film;

a third insulating film comprising organic resin over said second insulating film;

a pixel electrode over said third insulating film, said pixel electrode electrically connected to said first semiconductor layer.